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10/572,683	03/20/2006	Johan Torsner	2380-966	4939

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EXAMINER	
BEYEN, ZEWDU A	
ART UNIT	PAPER NUMBER
2461	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/572,683	TORSNER, JOHAN	
	Examiner	Art Unit	
	ZEWDU A. BEYEN	2461	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 June 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-28, have been examined, and are pending

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/02/2011 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

2. Claims 1-2, 4, 9, 13-16, 18, 23, and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terry to **(US2004/0120284), in view of** Vayanos to **(US20030210669)**

Regarding claim 1, Terry teaches establishing a communication with the UE having at least one data flow**(see par [0023] and fig.3)**

receiving data units from a higher radio link control layer in another node other than the base station where the radio link control layer is a higher protocol layer than medium access control layer (**[0042] discloses Node B receives PDU (i.e. RLC PDU according to par [0038]) from RNC. Furthermore, fig.3 discloses Node B with scheduler and different priority buffer at the higher level (i.e. MAC layer))**

analyzing at the medium access control layer some or all of a radio link control layer header of data unit associated with the one data flow(**[0042] discloses once the Node B receives the PDU from RNC it reads CmCH-Pi of the PUD that is located in the header Furthermore, fig.3 discloses Node B with scheduler and different priority buffer at the higher level (i.e. MAC layer))**

based on the analysis, determining at the medium access control layer a priority of the data unit relative to other data units associated with the one data flow(**[0042] discloses based on the CmCH-Pi that is read from the received PDU the Node B determines the priority Furthermore, fig.3 discloses Node B with scheduler and different priority buffer at the higher level (i.e. MAC layer))**

scheduling at the medium access control layer transmission of higher priority data units associated with the one data flow before lower priority data units associated with the one data flow(**[0042] discloses Node B transmission scheduler services the higher priority**

in advance of lower priority. Furthermore, fig.3 discloses Node B with scheduler and different priority buffer at the higher level (i.e. MAC layer))

Terry does not explicitly teach analyzing at a medium access control layer some or all of a radio link control layer header of a radio link control data unit

However, in same field of endeavourer Vayanos teaches analyzing at a medium access control layer some or all of a radio link control layer header of a radio link control data unit(**[0051] discloses data to be transmitted on the downlink is provided by the RLC layer in RLC protocol data units (RLC PDUs), each of which includes a sequence number (SN) and data. The MAC-d sublayer receives the RLC PDUs for one or more logical channels and, for each RLC PDU, inserts a (C/T) field to form a corresponding MAC-d PDU. The C/T field identifies the logical channel associated with the RLC PDU. Thus, inherently the header of RLC PDU that is received at the MAC layer must be analyzed before performing further processing by MAC layer)**

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to enable the system of Terry analyzing at a medium access control layer some or all of a radio link control layer header of a radio link control data unit, as suggested by Vayanos. This modification would benefit the system of Terry in order to achieve effective data transmission.

Regarding claim 15, Terry teaches a node in a radio network for use in facilitating a communication includes at least one data flow over a wireless interface with a user

equipment node (UE),(**see par [0023] and fig .3**)

a medium access controller for receiving data units from a higher radio link controller included in a radio network controller (RNC), **([0042] discloses Node B receives PDU (i.e. RLC PDU according to par [0038]) from RNC. Furthermore, fig.3 discloses Node B with scheduler and different priority buffer at the higher level (i.e. MAC layer))**the medium access controller being further configured to:

analyze some or all of a header of a radio link control data unit associated with the one data flow(**[0042] discloses once the Node B receives the PDU from RNC it reads CmCH-Pi of the PUD that is located in the header Furthermore, fig.3 discloses Node B with scheduler and different priority buffer at the higher level (i.e. MAC layer)**);

determine, based on the analysis, a priority of the one data unit relative to other data units associated with the one data flow **([0042] discloses based on the CmCH-Pi that is read from the received PDU the Node B determines the priority Furthermore, fig.3 discloses Node B with scheduler and different priority buffer at the higher level (i.e. MAC layer))**

schedule transmission of higher priority data units associated with the one data flow before lower priority data units associated with the one data flow(**[0042] discloses Node B transmission scheduler services the higher priority in advance of lower priority. Furthermore, fig.3 discloses Node B with scheduler and different priority buffer at the higher level (i.e. MAC layer)**).

Terry does not explicitly teach analyzing at a medium access control layer some or all of a radio link control layer header of a radio link control data unit

However, in same field of endeavourer Vayanos teaches analyzing at a medium access control layer some or all of a radio link control layer header of a radio link control data unit(**[0051] discloses data to be transmitted on the downlink is provided by the RLC layer in RLC protocol data units (RLC PDUs), each of which includes a sequence number (SN) and data. The MAC-d sublayer receives the RLC PDUs for one or more logical channels and, for each RLC PDU, inserts a (C/T) field to form a corresponding MAC-d PDU. The C/T field identifies the logical channel associated with the RLC PDU. Thus, inherently the header of RLC PDU that is received at the MAC layer must be analyzed before performing further processing by MAC layer)**

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to enable the system of Terry analyzing at a medium access control layer some or all of a radio link control layer header of a radio link control data unit, as suggested by Vayanos. This modification would benefit the system of Terry in order to achieve effective data transmission.

Regarding claims 2 and 16, Terry teaches the analyzing steps includes determining the priority based on radio link control data unit header information that does not explicitly indicate a priority for the data unit (**[0042] discloses Node B reads CmCH-Pi and determine the priority, However, CmCH-Pi only tells how many times the PDU has been transmitted which means it does not explicitly tells whether its high priority or low priority**).

Regarding claims 4, and 18 Terry teaches the method is performed in a radio base station **([0042] discloses performing scheduling according to priority at the Node B which is in the base station)** prioritizing retransmission of a previously-transmitted data unit associated with the one data flow over an original transmission of a data unit associated with the one data flow **([0043] discloses retransmit PDU have a higher priority than the priority of the original transmission)**

Regarding claims 9, and 23 Terry teaches storing data units associated with the one data flow in memory at the medium access control layer so that higher priority data units are accessed for transmission before lower priority data units**([0042] discloses determining the proper priority queue for the PDU, and services the higher priority queues in advance of lower priority queues)**

Regarding claims 13, and 26 Terry teaches the radio network includes a node B **(i.e. fig.6 box 104)** coupled for communication with a radio network controller (RNC)**(fig.6.box 102)** , and wherein the higher radio link layer is a radio link control (RLC) layer implemented in the RNC **(fig.6. connection line 110)** and the medium access control layer is a high speed-downlink shared channel (HS-DSCH) medium access control layer implemented in the node B**(fig.6 connection line 118.Furthermore, [0047] discloses HS-DSCH where the Node B MAC-hs entity schedules transmissions).**

Regarding claims 14, and 27 Terry teaches wherein the method does not rely on priority-specific signaling from the RNC to the node B to perform the determining step**([0042] Node B determine the priority of the PDU by reading CmCH-Pi of the PDU which means there is no priority-specific signaling from the RNC) .**

Regarding claim 28, Terry teaches a mobile radio communications system including the node in claim 15 **(see fig.6).**

3. Claims 3 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terry, in view of Vayanos and further in view of Itoh to **(US20020194361)**

Regarding claims 3, and 17 Terry **does not teach** determining whether the data unit is a control type of data unit or a data type of data unit, and determining the priority based on the determined data unit type

However, Itoh teaches determining whether the data unit is a control type of data unit or a data type of data unit, and determining the priority based on the determined data unit type **(, [0225] discloses priority level determining according to the type of the packet, to the packets sent across the network, a high priority level to control packets and a low priority level to data packets**).

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to enable the system of Terry determining the priority based on data unit type, as suggested by Itoh.This modification would benefit the system of Terry to efficiently allocate the network resource.

4. Claims 5-7, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terry, in view of Vayanos , and further in view of Xu to **(US20030231594)**

Regarding claims 5, and 19 Terry does not teach determining a sequence number for the data unit, and determining the priority based on the determined sequence number

However, Xu teaches determining a sequence number for the data unit, and determining the priority based on the determined sequence number **([0039] discloses retransmissions get higher priority but the oldest retransmission receives the highest priority. Furthermore, it discloses a network element monitors the difference between the RLP frame sequence number and the retransmission sequence number and gives the retransmissions with the smallest modulo sequence numbers the highest priority marking)**

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to enable the system of Terry to determine the priority based on a sequence number, as suggested by Xu. This modification would benefit the system of Terry to efficiently determine the oldest retransmit data unit.

Regarding claims 6, and 20 Terry does not teach determining a highest sequence number of multiple data units associated with the one data flow, and determining which of the other data units associated with the one data flow is a retransmission based on the determined highest sequence number

However, Xu teaches determining a highest sequence number of multiple data units associated with the one data flow, and determining which of the other data units associated with the one data flow is a retransmission based on the determined highest sequence number **([0039]discloses a network element monitors the difference**

between the RLP frame sequence number and the retransmission sequence number and gives the retransmissions with the smallest modulo sequence numbers the highest priority marking)

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to enable the system of Terry to determine data units associated with the one data flow is a retransmission based on the highest sequence number, as suggested by Xu. This modification would benefit the system of Terry to efficiently determine the oldest retransmit data unit.

Regarding claims 7, and 21 Terry does not teach taking into account a modulo sequence numbering in determining which data units are retransmissions

However, Xu teaches taking into account a modulo sequence numbering in determining which data units are retransmissions (**[0039] discloses modulo sequence numbers to determine the priority of a retransmit frame**).

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to enable the system of Terry to use a modulo sequence numbering for determining a retransmission data unit, as suggested by Xu. This modification would benefit the system of Terry to effectively determine the oldest data unit for the purpose of transmission.

5. Claims 8 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terry, in view of Vayanos , and further in view of Pohjanvouri to **(US6567396)**

Regarding claims 8, and 22 Terry does not teach determining a type of control data unit, and determining the priority based on the determined the type of control data unit

However , Pohjanvouri teaches determining a type of control data unit, and determining the priority based on the determined the type of control data **(col.7 lines 22-35 discloses a mobile station may run applications which generate high priority control data (e.g., to suspend a data transaction in favor of a voice transaction), low priority control data (e.g., to suspend a first data transaction in favor of a second data transaction) and control data associated with mobile station operation (e.g., measurement reports used to determine when a handoff is desirable). The mobile station may, for example, be permitted to use any one of frames or timeslots 4, 7, 8 and 9 in FIG. 4 to transmit the high priority control data or the mobile station operation control data, but may only be permitted to use frames or timeslots 8 and 9 to transmit the low priority control data).**

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to enable the system of Terry determining priority based on the determined the type of control data, as suggested by Pohjanvouri. This modification would benefit the system of Terry to efficiently allocate the network resource.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Terry, in view of Vayanos, and further in view of Puthiyedath to **(US7117521)**

Regarding claims 10, Terry does not teach removing duplicate data packets from the memory

However, Puthiyedath teaches removing duplicate data packets from the memory **(col.3 lines 20-25 discloses The original data buffer 108 may conduct an editing process to reorder the received data packets to ensure proper sequencing, discard duplicated data packets, and synchronize the audio/video data packets. A suitable retransmission delay time can be used when editing the original data buffer)**

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to enable the system of Terry removing duplicate data packets from the memory, as suggested by Puthiyedath. This modification would benefit the system of Terry to guaranty enough spaces for incoming data unit.

7. Claims 11 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terry, in view of Vayanos and further in view of Baroudi to **(US 6594278)**

Regarding claims 11, and 24 Terry does not teach analyzing information in a payload portion of the radio link control data unit

However, Baroudi teaches analyzing information in a payload portion of the radio link control data unit **(col.15 lines 5-10 discloses for giving the frame special priority if the frame is delay sensitive. The means for examining is used to examine payload types in the headers of the sub-frames, the unused portion in the headers of the sub-frames).**

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to enable the system of Terry to analyze information in a payload portion of the radio link control data unit, as suggested by Baroudi. This modification would benefit the system of Terry to efficiently determine the priority of the data unit.

8. Claims 12 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terry, and Vayanos and Baroudi, and further in view of Jang to **(US20030202501)**

Regarding claims 12, and 25 Terry does not teach if a polling bit is set in a first data unit associated with the one data flow, setting the polling bit in the header of a second data unit associated with the one data flow with a priority higher than that of the first data unit

However, Jang teaches if a polling bit is set in a first data unit associated with the one data flow, setting the polling bit in the header of a second data unit associated with the one data flow with a priority higher than that of the first data unit **(Col.3 lines 14-19 discloses re-transmitted PDUs given priority over first-transmitted PDUs, and set a polling bit in the re-transmitted PDU).**

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to enable the system of Terry to set a polling bit in the header of a second data unit associated with the one data flow with a priority higher than that of the first data unit, as suggested by Jang. This modification would benefit the system of Terry to transmit data unit that has a high priority fast.

Response to Argument

1. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ZEWDU BEYEN whose telephone number is (571)270-7157. The examiner can normally be reached on Monday thru Friday, 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 1-571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Z. B./

Examiner, Art Unit 2461

/Huy D Vu/

Supervisory Patent Examiner, Art Unit 2461